IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Nobuharu SHIINA.

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For : RUBBER COMPOSITION AND HEAVY DUTY PNEUMATIC TIRE USING THE RUBBER COMPOSITION

Art Unit & Examiner : 1713, MULCAHY, PETER D

DECLARATION UNDER 37 CFR 1.132

ASSISTANT COMMISSIONER FOR PATENTS

WASHINGTON, D.C. 20231

Sir:

I, Tatsuro HAMADA, residing 6-27-10, Nangai, Higashiyamato-shi, Tokyo, Japan, declare that;

1. I graduated from Tokyo Institute of Technology with a Master's degree in Department of Polymer Chemistry in March 1983, and joined BRIDGESTONE CORPORATION in April 1983. Then, I was engaged in Development of new materials for Tires for twelve years in Tire Material Development Department, and from 1996 I was engaged in Development of new materials for Tires in BRIDGESTONE FIRESTONE RESEARCH INC. for five years, and from 2001, I have been engaged in the Development of Compound design for Truck and Bus Tires in Tire Compounds Development Department 1 up to the present.

2. I am familiar with the subject matter disclosed in the application.

3. Experiment

Object of Experiment

In order to confirm that the rubber composition which has a compounding ratio of natural rubber to styrene butadiene rubber being 30/70, as disclosed in Examples of the cited reference (U.S. Patent No. 5,726,237), has an adverse influence on the effect of the present invention, the following experiments 1 to 3 were carried out.

Procedure of the Experiment

Procedures described in Example 1 of the present specification were repeated, except that the rubber components and their compounding ratios shown in table 1 were used, to obtain a rubber composition and tires.

Evaluation results obtained are shown in table 2. Incidentally, to make the results more understandable, these data as compared with the data reproduced from Examples 1,2 and Comparative Examples 1 to 5 of the present specification are also shown in table 3.

Table 1

	Experiment 1	Experiment 2	Experiment 3
Rubber component (part by weight)			
natural rubber	30	30	30
E-SBR	—	—	70
S-SBR 1	70	70	—
BMH (part by weight)	—	1.0	—
HNH (part by weight)	—	—	0.5

Note: E-SBR, S-SBR, BMH, and HNH represent Emulsion SBR(#1500), Solution SBR 1 (tin tetrachloride coupling), hydrazide compound (2-hydroxy-N'-(1,3-dimethylbutylidene)-3-naphthoic acid hydrazide, hydrazide compound (2- Hydroxy -3-naphthoyl hydrazide) respectively.

Table 2

	Experiment 1	Experiment 2	Experiment 3
Low heat generating Property (index)	107	115	85
Tear resistance (index)	80	88	89
Abrasion resistance	85	92	90

Table 3

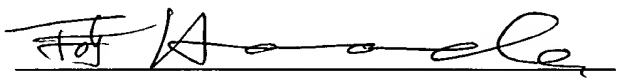
	Example		Comparative Example					Experiment		
	1	2	1	2	3	4	5	1	2	3
Rubber component (part by weight)										
natural rubber	80	60	100	80	80	60	60	30	30	30
E-SBR	—	—	—	20	—	40	—	—	—	70
S-SBR	20	40	—	—	20	—	40	—	—	—
S-SBR 1	—	—	—	—	—	—	—	70	70	—
BMH (part by weight)	1.0	1.0	—	—	—	—	—	—	1.0	—
HNH (part by weight)	—	—	—	—	—	—	—	—	—	0.5
Low heat generating Property (index)	112	125	100	94	100	87	110	107	115	85
Tear resistance (index)	122	117	100	105	106	112	101	80	88	89
Abrasion resistance	114	116	100	107	107	110	110	85	92	90

4. Consideration

It is clearly understood from the above results that in case when the rubber component ratio of modified styrene butadiene copolymer rubber to natural rubber or synthetic isoprene rubber is outside the range of 15 to55 /45 to 85 defined in the present invention, even if 1.0 part by weight of hydrazide is compounded as shown in Experiment 2, Tear Resistance, Abrasion Resistance are greatly deteriorated, thus resulting in that the object of the present invention, namely, abrasion resistance, tear resistance, and low heat-generation property, can not be attained.

Incidentally, it is noted the both the Tear Resistance and Abrasion Resistance, as shown in Table 3, are inferior to those in case of Comparative Examples 1 to 5 of the present specification.

5. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.



Tatsuro HAMADA

Date 2-17-2004